

Cardiovascular Health for Law Enforcement

Expert Insight from Dr. Mark Houston

By Jason Shea, M.S., PICP IV

Stress, sedentary lifestyle, poor nutritional habits, and lack of exercise are common factors associated with poor cardiovascular health. Though these are prevalent through most of the North American society, these risk factors often run rampant in the law enforcement community. When combined with the stress of life and death situations a multitude of health problems can arise. Associated with these risk factors is longevity, with some reports estimating the average lifespan post-duty to be as little as 5 years?

When it comes to cardiovascular health, one of the most respected and well recognized experts is Dr. Mark Houston. Dr. Houston has been named by USA Today as one of the Most Influential Doctors in the US, as well as one of the Consumer Research Council's top Physicians in Hypertension. He is the Director of the Hypertension Institute in Nashville Tennessee and Professor of Medicine at Vanderbilt University. He has over 200 published scientific articles and has also authored five books including What Your Doctor May Not Tell You About Heart Disease, What Your Doctor May Not Tell You About Hypertension, Handbook of Antihypertensive Therapy, Vascular Biology for the Clinician, and Hypertension Handbook for Students and Clinicians. He has also given lectures around the globe on hypertension and sits on the editorial boards for over 20 US medical journals.

The following is a sampling of his expert insight and how it can apply to the law enforcement community around the globe.

What do you feel are the causes of the prevalence of blood pressure and other cardiovascular risk factors throughout the law enforcement community?

These are definitely higher than population. Shift work and the stress of the job, poor dietary choices, and minimal exercise can increase these cardiovascular risk factors. In this population these professionals risk their lives daily, whether through physical altercations or being shot at, their jobs can be very stressful. This stress increases cortisol and adrenaline levels which increase blood pressure.

Associated with the increase in these stress hormones is an increase in fat deposition in the visceral area. When chronic, these stress hormones can also damage the hippocampus of the brain and disturb sleep patterns, both of which can have profound negative effects on health.

Are there specific markers of heart disease that should be tracked over time?

We use very specific blood tests to determine cardiovascular health. Traditional cholesterol testing is very limited, narrow, and out of date. If you just test for total and LDL cholesterol, you may miss the actual risk related to components of these measurements. There are actually 300-400 different risk factors associated with cardiovascular health. We look at inflammation through high sensitivity CRP testing. We perform dysglycemia testing to determine issues in blood sugar metabolism. Cholesterol is much more

complex than simple LDL, HDL, and Total Cholesterol testing. In order to get an accurate picture of an individual's cholesterol profile, we look at particle number and particle size. We also need to test clotting factors and endothelial function.

A few of the tests we perform include Endopat, Pulse Wave Analysis, MRI's of the heart, electron beam tomography among others. It is through these tests that we can gain an accurate depiction of an individual's cardiovascular health. It is not as simple as total cholesterol.

What is the role of Inflammation in CVD?

It is one of the top 3 causes of vascular disease. The other two are oxidative stress and immune dysfunction of the arteries. There are an infinite number of insults to the blood vessels, but a finite number of results.

What is the role of insulin in inflammation and CVD?

Insulin is a major vascular disease risk factor. Skeletal muscle is a primary effect organ for insulin. If you lose muscle mass you become insulin resistant. As you lose muscle mass you may increase body fat which then creates a state of insulin resistance, further increasing your potential for heart disease.

What type of training do you recommend for improving cardiovascular health?

Resistance training is paramount. I recommend training at least 4 days per week, but usually recommend one hour per day, with a 2:1 ratio of resistance training to interval cardiovascular training. In an hour workout, 40 minutes of weight training followed by 20 minutes of intervals is ideal. Just a few of the benefits of resistance training include increases in non-inflammatory hormones and nitric oxide, improved insulin sensitivity and increased muscle tissue. Excessive endurance training increases oxidative stress, decreases testosterone, increases cortisol, and has a negative impact on Igf-1.

For cardiovascular health, is interval training more effective than long slow endurance training?

With interval training, you are pushing different muscle fibers to the limit. Lactate is accumulated with high anaerobic demand. Associated with increased lactic acid is a cascade of positive hormonal responses. As I mentioned before, long slow endurance training leads to decreases in testosterone, increased cortisol, and increased oxidative stress, whereas high intensity interval training leads to an entire cascade of positive hormonal effects.

As stress is a major part of Law enforcement professional's job, do you have any tips on stress reduction?

Eight hours of sleep. One hour of exercise per day using a 2:1 strength to interval ratio.

Do you have any supplement recommendations to manage inflammation?

Omega 3 fatty acids at 3 to 5 grams per day for maintenance. We have used short term dosing of 30 grams per day for clinically obese patients. Curcumin, Boswellia and Cinnamon work well. Phosphatidylserine and buffered Vitamin C also work well especially to lower cortisol levels.

Can you provide quick tips on decreasing serum triglyceride levels?

The quickest way to decrease serum triglyceride levels is a diet low in refined carbohydrates and starches. 5 grams of omega 3's per day will lower TG by 40% and also increase HDL cholesterol.

Quick tips on lowering blood pressure?

Exercise, lowering body fat, salt restriction, increased omega 3's, trans-resveratrol, and increased potassium intake. Vasculostirt by Biotics is an excellent product for managing blood pressure and has 28 micronutrients to improve vascular health.

Increasing insulin sensitivity?

Green tea extract. R Lipoic Acid, Carnitine. Yang R-Ala contains both of these. Exercise to increase lean muscle mass, reduction of refined carbohydrates, and optimizing potassium and magnesium levels are good strategies.

Improving cholesterol?

People need to understand the entire picture of cholesterol. Advanced lipid testing is required for an accurate depiction. Particle size, number, and oxidation of low density lipoproteins are important factors. We use 4 labs when performing advanced lipid testing. As a culture, we expend too much energy concerning ourselves with the fat in our diet, when we need to be more concerned with refined sugars and trans fatty acids. For example, many individuals only eat egg whites as they are under the impression the yolk will increase cholesterol. Eggs do not raise cholesterol levels at all. The yolks are filled with choline, which is a major building block for cell membranes.

Dr. Houston, it has been both an honor and a pleasure. Thank you for your time and insight?

It has been my pleasure.